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1978

ORDER ENTRY AND DISTRIBUTION

PROCEDURES OF

PETROLEUM FIRMS

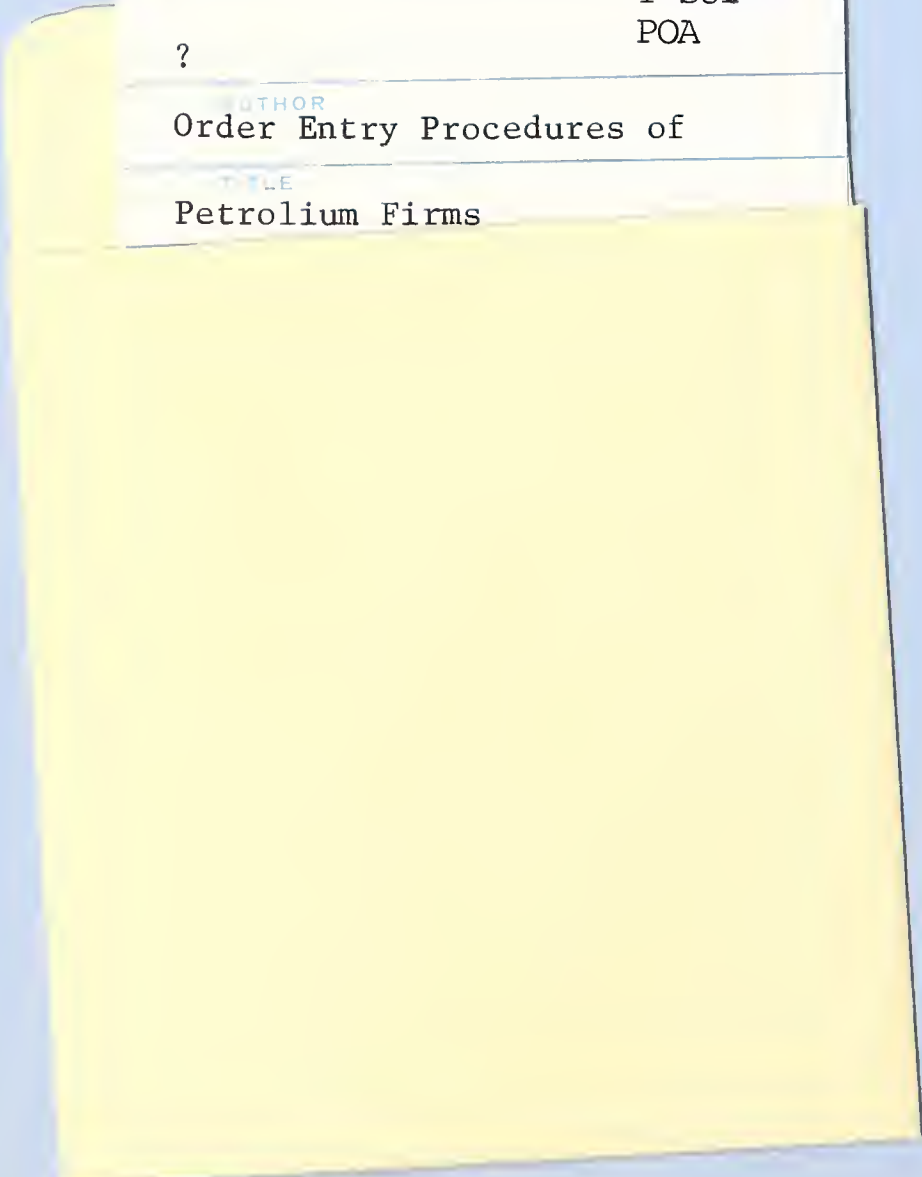


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Order Entry Procedures of

TITLE
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I INTRODUCTION

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- The purpose of this study was to interview *six of the following eight petroleum companies on their order entry procedures:
 - Amerada Hess (PA).
 - *Marathon (OH).
 - *Clark (WI).
 - *KO Division of Continental (TN).
 - AMOCO (Chicago).
 - *Shell Canada, Ltd. (Toronto).
 - *Phillips (OK) (would only agree to phone interview).
 - *Gulf (Houston).

Interviews were carried out with marketing, financial, operating and data processing personnel.

- A verbal presentation to SUN Information Services was completed.



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II SUMMARY OF THE FINDINGS

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- Optimizing the profitability of the distribution system is the dominant theme.
- Most firms believe that profit growth will result from more efficient distribution of petroleum products by tight control of field expenses, by expanding operations into offering convenience foods and products, and capitalizing upon the superior location of many stations.
- While none of these efforts are really new, the emphasis and urgency has placed burdens both on the operating management and their data processing support.
- Today's data acquisition and reporting systems were often designed with different objectives and a different environment in mind. The game is changing rapidly and data processing and distribution are not moving together. Marketing is adapting quickly and decisions are being made with less than adequate data and information. A surprising amount of "necessary" data is being gathered by "telephone girls" in marketing. Numerous "special studies" are requested. Supervision, as costly as it is, frequently seems to substitute for timely management information from data processing.
- Respondents often critically referred to the financial orientation of data processing:
 - Existing systems seem of little benefit to local users.

- Distributed data processing is clearly needed, but generally viewed as "somewhere in the future."
- ABTs and on-site minicomputers performing in a distributed environment is clearly the direction of evolution of most systems.
- Some commonly expressed data processing objectives as reported by data processing personnel were:
 - Go to automated bulk terminal plants.
 - Marathon.
 - Shell Canada, Ltd.
 - Distributed Data Systems (usually expressed as improving service to local users:
 - Shell Canada, Ltd.
 - Marathon.
 - Greater speed and accuracy in gathering data.
 - Clark.
 - Gulf.
 - Shell Canada, Ltd.
 - Establish better data base.
 - Kayo.
 - Clark.
 - Reduce data processing costs.
 - Phillips.

- While data processing within respondent companies seems intent on making incremental improvements in existing systems, the marketing and distribution activities of these same companies are ploughing new ground. The opportunities for data processing to assist and support these efforts are substantial, but as reported above (excepting possibly "establish better data base") are largely unrecognized.

- Changes as perceived by the respondents:
 - Oil will continue to be in managed supply and pricing may be affected by Federal Government intervention. Consequently, distribution must be optimized from a volume cost and investment standpoint.
 - Non-petroleum, non-automotive products will become significant profit producers and should be integrated into the system.
 - Emphasis of cash and carry subsidiaries.
 - Increase of self-service (reduction of operating costs, especially personnel).
 - Introduction of convenience foods, beer, cigarettes, and impulse goods to augment gas and oil.
 - Performance of in-depth operational analysis of distribution network (station location, etc.).
 - Emphasis of heating oil distribution.
 - Analysis of profit contribution by product.

- The cash and carry self-service groups generally operate on a cash accounting basis:
 - Stations to buy from outsiders, but only on a cash basis.

- No records of "outside source inventories" are maintained.
 - Most stations handle cigarettes and beer, some have more.
 - Cash deposits are reconciled to inventories, etc., daily on a cash ticket. The cash tickets serve as data processing input.
- Kayo, a fairly typical example, has primitive data processing while operating with a multi-levelled supervisory system:
 - The key to sales is "price."
 - Management, in general, seems to know price elasticity by station location or area.
 - Cash collection is excellent.
 - Pricing decisions are made by management from data gleaned from the field by telephone. On balance, Kayo is quite successful. However, more responsive management information would reduce costs, improve product pricing decisions, and possibly reduce inventories of purchased items. (Incidentally, Kayo has already reduced the number of station locations from 650 to 450 while maintaining product volume.)
- All firms except Marathon expressed interest in the analysis of station contribution, the amount of service offered, the products carried, the proper use of space and facilities, or whether to improve or to maintain the location at all.
 - Clark, Kayo, Shell, and Gulf are doing a number of special studies to aid decision making, and it appears that these will be ongoing efforts. The common data base appears desirable, but the analytic work will vary according to the needs.

- Distribution modeling will be very productive once the facts and data become available.
- Heating oil distribution is a focus of Shell Canada, Ltd. A package designed by a local firm, STS, and using 25 Novas has been installed in a distributed processing system. The system offers customer accounting, inventory control, degree day dispatching, truck hauling, as well as management data for local use and for transmission to the "head office." Similar distributed processing systems may be useful for chemicals and agri-chemical sales organizations.
- Cash flow has been thoughtfully considered by all respondents:
 - The cash and carry group solve the problem by immediate deposit to the account of the parent.
 - Clark deposits cash locally and bank transfer is done by GEIS in an arrangement worked out with Clark's banks.
- Credit card processing is a universal problem. Marathon, Clark, and Shell reported they were considering changing to description billing instead of the conventional "country club" method. The concern about having the customer's signature is solvable according to Marathon (facsimile transmission but at excessive cost). All firms mentioned their efforts to speed up processing, but only Shell Canada, Ltd. remarked that their system was good.
- Although tires, batteries, and accessories (TBA) is being phased out by most respondents, volume of other packaged items increasing inventory control is becoming more of a problem. In general, marketing needs more and better information to evaluate the non-gas and oil business to manage the supply function of these products. Currently, appropriate inventory control systems, sales, and contribution analysis are only being prepared on an informal basis.

III COMMENTS AND OBSERVATIONS

III COMMENTS AND OBSERVATIONS

- Each of the companies surveyed has a different concept of data processing responsibility and structure appropriate to the particular company's overall image and objectives.
- None of the respondents has yet achieved Sun Oil's decentralized self-sufficient functional organization. Perhaps Gulf is close and Shell Canada, Ltd. is progressing in this direction.
- The marketing function has improved stature in every company with the possible exception of Marathon.

Marketing and data processing have often not used computer services vendors. "In-house" developments are considered largely "cost free" to the user and data processing has other and frequently conflicting responsibilities to exploration, production, refining, and especially finance.

- Note: Arranging for visits and obtaining information in a short time span was difficult. Amerada Hess actually refused to take part, and Gulf was reluctant to discuss anything but the most general matters. On the other hand, Shell Canada, Marathon, Clark, and Kayo were extremely cooperative once the ice was broken.

APPENDIX A: INTERVIEW GUIDE:
ORDER ENTRY SYSTEMS

APPENDIX A

Interview Guide for Order Entry Systems

Name Respondent: _____

Date: _____

Company: _____

Title: _____

1. How would you describe your companies management philosophy?
2. How is your company organized (centralized, decentralized, etc.) try to get organization charts.
3. What types of marketing decisions are made at the various levels of your organization?
4. What type of sales and inventory information is needed to make these decisions?
5. What types of sales and inventory information do you get now and how frequently do you get that information?
6. What type of studies do you periodically request?

7. What type of sales and inventory information would you like to get that you're not getting now?
8. If you could do it over again what would you change in your order entry system?

APPENDIX B: INTERVIEW GUIDE:
RETAIL PETROLEUM
MARKETING

APPENDIX B

INTERVIEW GUIDE

RETAIL PETROLEUM PRODUCT MARKETING ORDER PROCESSING & ACCOUNTING SYSTEM

- A. What types of computer processing are used at bulk distribution plants? What is planned?
- B. If processing is located in the plants, how are interfaces to corporate-level accounting and corporate-level information systems controlled? Where is the responsibility? Why was this method chosen? What level of detail is fed back? How is back-up handled?
- C. How is order processing handled for packaged products? Why was this method chosen? What changes might be planned? How is back-up handled?
- D. If you use 3rd-party blending and packaging facilities, how do they interface to your order processing system? What responsibilities do they have from a DP standpoint in handling your orders?
- E. If you use any 3rd party software packages in either your distribution plants or your order processing facilities, why were they chosen? Were the initially estimated benefits achieved as expected or did you have to supply additional personal and/or finances to achieve those benefits?

- F. If you have a corporate-level management information system, what types of data are available (gross details)? What is planned?
- G. How are exchanges handled? What is planned?
- H. Describe your success with your hardware vendors? If you are in a multi-vendor environment, how has that gone?

APPENDIX C: INTERVIEW
SUMMARIES (6)

MARATHON

Gerald Kramer

Data Processing

2-15-78

1. Marathon continues to emphasize production rather than retail distribution. Owns no stations - does, however, have subs that do. Trend is moving toward distribution. No plans for adding convenience foods, etc. Strictly a gas and oil business.
2. Organized basically by functions. Data processing is highly centralized.
3. Location decisions.
 - Marketing services.
 - Pricing - VP Marketing.
 - Inventory - committee decision - VP Marketing.
4. Much emphasis on L.R. plan - economics. Corporate strategy - budget - monthly performance. Much integrated planning.

5. On-line inventory for all functions from crude to bulk plant. Sales daily.
6. Most periodical studies are engineering oriented - some distribution modeling (OR group in Findlay).
7. Automates terminals - get B/L at terms. 45-50 terminals!
 - Objectives:
 - . ABT.
 - . What being taken by cost from all sites - government required. Must be sure no overdraw of allocation.
 - . Terminal must be able to blend on site.
 - . Provide both structured and unstructured communications (message switching).
 - . Collect accounting data.
 - . Auditing capability.
8. Contract both hardware and software.
 - A. Bulk distribution plants:
 - Ancient equipment - teletype, blending, and security gear. - planning updates. Motorola and Sun Technology declined to state status of award. Want to automate all terminals and put on-line.
 - B. System.
 - All terminals can access both main computers. Emphasis on engineering studies on speed.

- Terminals are data point hard disk:
 - . Project accounting (local only).
 - . Corporate accounting and Op. date (data acquired and transmitted).
 - . Engineering calc. and data transmission - time share.
- Back-up - retain source data and re-enter.

C. No packaged products.

D. N/A.

E. Have used packaged software:

- Chosen by committee.
- Basically good results.
- Closely monitored by data processing.

F. Declined to comment on corporate data available - heavy on sources and LRP.

G. Exchanges all by agreement.

- Distribution settle monthly or quarterly depending upon contract. Consider A/R - A/P offsets differences settled in cash without others' concern.

- Crude exchanges - again by contract - traditional provisions for differing crude characteristics.
- No changes planned.

H. Good results - again committee style.

CLARK

John A. Bruss

VP Finance

2-7-78

1. Clark is highly centralized - regionally oriented. Producer/marketer of gasoline, sundries, and distillates. Decisions are based on common data by headquarter personnel. Refineries use headquarter computer day shift - management batch nights.

2. Organization: functional:
 - Approximately 8,000 employees.
 - Two refineries.
 - Two ABT plants.
 - Midwest distribution only. Mostly, Ohio, Indiana, Illinois, and Wisconsin. Refineries in Illinois, No. St. Louis, and Chicago.

3. Pricing.
Real Estate.
Inventory.
P&L.

4. Format provided.
5. Format provided:
 - Weekly.
 - P&L monthly by stations, etc., by function, no surprises in P&L, inv., etc.
6. Highly detailed system, close coordination - few exceptions - special processing at minimum.
7. Get same information/day faster. Cash flow/eliminate written reports used for input.
8. Faster sales data.
- A. Bulk distribution plants - A.O. Smith systems ABT unattended 1/2 day - card com system recorded on "mini" at terminal, edited at terminal, transmit to corporate afternoon, central billing from HQ each afternoon. All terminals automated now, no further changes now.
- B. Processing at HQ. Refineries and engineering use computer, day and for simulation and technical programs. Accounting and finance batch process, nights.

Cash collection by teletype and GE timeshare, direct deposit banks. Checks issued same.

Little detail fed back.

Back-up - source data back-up - redundant transmission. Most is station data/bulk and wholesale less.

- C. Order processing packaged products.
- D. Now used/central purchasing of resale items and supplied.
- E. Software - "in-house." ABT. A.O. Smith (local - good system). System evolved over long period. Intensive work past 2-3 years.
- F. See examples.
- G. N/A.
- H. Interviewee not aware.

KAYO OIL

George Kales

D.P. Manager

2-14-78

1. Company is a cash and carry subsidiary of Conoco. Features low cost retail distribution to price conscious buyers. Company is innovative and quite successful. Accounting in field is on a cash basis. Kayo buys all gasoline possible - all comes from Conoco - know at beginning of month what quantity will sell. Pricing for greatest \$ volume is objective.
2. Organization: function and divisional.
3. Pricing and station management decisions are made at high levels - inventory is virtually a constant.
4. Data for day-to-day decision-making comes from telephone surveys. Data processing makes some special studies. P&L available monthly.
5. End of month regular data is available. Convenience items such as beer and cigarettes are not on inventory.

6. Frequently requested studies concern:

- Profit by product.
- Investment by location/also signs/building types, etc.
- Product mix vs profitability.
- List all stations selling beer.

7. Marketing would like faster data.

8. System is punched card oriented - prescribed by Conoco. End of month problems - data is stale before used.

A. No bulk plants - all materials are obtained from Conoco or directly delivered to stations and paid in cash. Incidentally, Conoco bills Kayo monthly. (Note: Cash A/C is Conoco's.)

B. N/A.

C. Packaged products:

- Oil obtained from Kayo central warehouse not from Conoco. Orders are manual.
- Sundries, beer, etc., are ordered from supplies and paid in cash.

- D. Conoco only. Oil is delivered in bulk and canned by Kayo.

- E. NCR wrote applications software for "on-line" systems, payroll, general ledger, etc. Other user applications by Kayo in Cobol. Kayo has two NCR 101s -64K and 32K. Results OK.

- F. No M.I.S. system.

- G. Conoco sole supplier so N/A.

- H. NCR - good service.

(Note: Kales was a former accountant with some on-the-job training in data processing.

SHELL CANADA LTD.

G. G. Brinsmead

Manager, Management Information Development

2-21-78

1. Balanced emphasis on production, exploration, and marketing. Highly oriented to central systems. Exploration highly successful. Some innovative marketing and distribution. Brinsmead says by far most innovating merchandising in Canada.
2. Functionally organized.
3.
 - a. Location decisions - oil/dist group.
 - b. Pricing (oil, supply, and dist committee).
 - c. Inv. - V.P. manufacturing and supply "helter skelter."
4. Oil need trends - price elasticity - inventory sales (package information not good enough). Information is normally published monthly with financials. Inventory, etc., data is "on-line" at remote locations, so can be pulled together quickly. Not normally necessary.

5. Get adequate information except for retail package inventory of convenience items.
 6. Many studies are requested - profitability, location, product lines, etc. These are problems because management is not accustomed to variations in data arising from different assumptions (costs, etc.). "Systems" now considering data base system covering retail distribution.
 7. Getting all data absolutely necessary. Would like systems to be more responsive to local needs. Present system financially oriented and too centralized.
 8. Would like more of a "distributed system."
- A. Computer processing at bulk distribution:
- MAT system: three centers.
 - . Toronto - CRT terminals.
 - . Oakville - "Syncom" data base not being used.
 - . Montreal - no ABT stuff.
 - Want to put full minis in these locations.
 - Lurpco systems - a number of these systems.
 - Uses Nova-Micos system:
 - . Control of inventories.
 - . Routing information for trucks and dispatching.

- . Produces priced "delivery ticket."
- . Summary data for transmission.

Farm dealer system:

- . Uses Four Phase - five locations.
- . Edits input data to reduce clerical problems and turn-around time.
- . 25 Heat Branches - retail fuel dealers - uses Nova-Micos.

- B. Little use made of financial systems in plants. Plants use terminals direct to central processing facilities.
- C. Order processing same as fuels. Retail systems - convenience foods, etc., "helter skelter."
- D. No third party blending now. Some packaged products drop-shipped. Shell owns inventories at these remote shipping points.
- E. Have used third party software. Would like to use more. Central systems selected vendor and monitored system. Benefits OK. Prices usually too high. Internal charges partly concealed.
- F. Too broad for good answer. Company emphasizes exploration and financial reporting to top levels.

G. Exchanges are usually A/R, A/P. Occasionally, crude is exchanged in large transactions by negotiation.

H. OK. (Somewhat reticent on this kind of specific.)

PHILLIPS PETROLEUM

Carleton Ward

Systems Analyst

(Telephone Interview)

- I. Classically organized - not much change - still emphasizes resourcing. Production, exploration, and marketing pipelines and transmission are separate services. Pipeline operates data collection systems.

- A. Gen Atomics system at bulk dist. Summary on GA computers - investigating IBM 3741 model wk stus with diskettes - polled direct from Bartlesville.

- B. Separate systems.

GULF

T. Cleghorn - Systems Analyst

Robert Greiner - Coordinator

Samuel Bounds - Vice President

W. R. Adams - Financial V.P. Marketing and Refining

N. L. Deby - Financial V.P. Exploration

B. Seltz - Financial V.P. Chemicals

1. Note: Management source most reluctant to give out substantive information directly - all deferred to need for top level clearance.

2. Organization of Gulf is moderately centralized. Within petroleum area operating decisions are:
 - Marketing and refining.

 - Exploration.

 - Chemicals.

Marketing distribution oriented around geographic system. Data center is a cost pass through service. All data gathering and disseminating is by data center. Data center not interested.

Major marketing decisions made at relatively high levels:

- Inventory/production decision made by specialists/at marketing, refining, executive level, station profitability - location, etc. within distribution. Cash flow decisions by "finance."
- Trend to decentralize, but slow progress.
- Need:
 - . Inventory data available frequency.
 - . Cash flow date.
 - . Exchanges.
 - . TBA.
 - . Kinds of studies.

A. PDP IIs Gen Atomics terminal equipment. Invoice at site. On-line system W/PDP IIs and cent computers.

B. Data processing in two locations - Pittsburgh and Houston. Data service owns computer:

- Users responsible for contracting for data software. Occasionally third party software.
- Except inventory - most data batch processed.

C. Declined to answer.

D. N/A.

- E. In-house development except initial Gen Atomics systems good.
- F. Declined to answer (believe corp receives extensive data from op. decisions and that control is a problem).
- G. N/A.
- H. Have had good results with hardware vendors. Multi-vendor environment.

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